1	18	..INDEX /Aun BLANCH, J O
2	19893	7
3	0	SS 7
4	8	ESTIMAT??? 1W SOURCE 1W WAVE????
5	0	1 FU
6	0	COMPAR???? 2D ESTIMAT??? 2D SOURCE 2D WAVE????
7	4	COMPAR???? S ESTIMAT??? S SOURCE S WAVE????
8	20	COMPAR??? S ESTIMAT??? S SOURCE
9	170	ESTIMAT??? 3W SOURCE
10	27550	COMPAR???
11	19	9 AND 10
12	28	4 OR 8
13	14	11 NOT 12

Search statement 14

Query/Command : stop hold

Session finished: 07 NOV 2003 Time 17:51:04

TULSA - Time in minutes : 26,59
The cost estimation below is based on Questel's
standard price list
Estimated cost : 33.23 USD
Records displayed and billed : 9
Estimated cost : 9.60 USD
Cost estimated for the last database search : 42.83 USD
Estimated total session cost : 43.85 USD

Your session will be retained for 2 hours.

QUESTEL.ORBIT thanks you. Hope to hear from you again soon.

L Number	Hits	Search Text	DB	Time stamp
1	110	estimat$3 near3 source near3 wave$5	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:01
2	2349558	compar$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:01
3	54	(estimat$3 near3 source near3 wave$5) and compar$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:01
4	2838818	borehole or well	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:01
5	46	((estimat$3 near3 source near3 wave$5) and compar$4) and (borehole or well)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:02
6	173	source near3 wavelet	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:03
7	24	(estimat$3 near3 source near3 wave$5) and (source near3 wavelet)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 09:03
8	15	compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:19
9	443820	velocity	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:19
10	44	(estimat$3 near3 source near3 wave$5) and velocity	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:19
11	42	(borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:20
12	19	(source near3 wavelet) and ((borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:21
13	6	((source near3 wavelet) and ((borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity))) not (compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet)))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:30
14	2394450	compar$4 near3 estimat$3 source	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:32
15	1013635	(borehole or well) and (compar$4 near3 estimat$3 source)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:33
16	119926	velocity and ((borehole or well) and (compar$4 near3 estimat$3 source))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:35
17	98	(source near3 wavelet) and (velocity and ((borehole or well) and (compar$4 near3 estimat$3 source)))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:35

18	21	(compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet))) or (((source near3 wavelet) and ((borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity))) not (compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet))))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:36
19	79	((source near3 wavelet) and (velocity and ((borehole or well) and (compar$4 near3 estimat$3 source)))) not ((compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet))) or (((source near3 wavelet) and ((borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity))) not (compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet)))))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:37
20	3706	(acoustic or seismic) adj2 velocit$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:38
21	17	(((source near3 wavelet) and (velocity and ((borehole or well) and (compar$4 near3 estimat$3 source)))) not ((compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet))) or (((source near3 wavelet) and ((borehole or well) and ((estimat$3 near3 source near3 wave$5) and velocity))) not (compar$4 and ((estimat$3 near3 source near3 wave$5) and (source near3 wavelet)))))) and ((acoustic or seismic) adj2 velocit$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/07 10:38

LOG INTERPRETATION*; WELL LOGGING*; ACOUSTIC RECEIVER; ACOUSTICS; ANISOTROPY; APPROXIMATION; AZIMUTH; CHARACTERIZATION; CHART; CLASSIFICATION; COMPOSITE WAVE; COMPOSITION; COMPUTING; DATA PROCESSING; DENSITY; DETECTION; DETECTOR; DIAGRAM; DIPOLE; ELECTRICAL EQUIPMENT; ELECTRONIC EQUIPMENT; EQUATION; GEOLOGIC STRUCTURE; GRAPH; HALLIBURTON ENERGY SERVICE; HETEROGENEOUS RESERVOIR; INSTRUMENT; ISOTROPY; MATHEMATICAL ANALYSIS; MATHEMATICAL MODEL; MATHEMATICS; MODEL; ORIENTATION; POLARIZATION; RECEIVER (ELECTRONIC); REMOTE SENSING; REMOTE SENSOR; RESERVOIR; RESERVOIR CHARACTERIZATION; ROCK COMPOSITION; ROCK DENSITY; SEISMIC WAVE; SEISMIC WAVE SOURCE; SHEAR WAVE SOURCE; SONDE; SOUND WAVE; SOUND WAVE SOURCE; WAVE SOURCE; WELL LOG; WELL LOGGING EQUIPMENT; WELLBORE DIAGRAM

MH - SONIC LOGGING*

CC - WELL LOGGING & SURVEYING

AB - A signal processing technique is described for determining the fast and slow shear wave polarizations and their orientation for acoustic waves in an anisotropic earth formation. The signal processing method decomposes composite received waveforms a number of times, using a number of different strike angles. The decomposed signals are used to create estimated source signals. The estimated source signals are compared in some way to obtain an objective function. Locations in a plot where the objective function reaches minimum values are indicative of the acoustic velocity of the fast and slow polarizations within the formation.

PY - 2003

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3 / 18 TULSA - ©TULS

AN	-	798115
TI	-	(R) PROCESSING FOR SONIC WAVEFORMS
AU	-	BLANCH, J O; HOLMQUIST, S G; MARKET, J A; VARSAMIS, G L
SO	-	US 6,453,240B1, C 2002.09.17, F 2000.04.11, PR US 1999.04.12 (APPL 60/128,912) (G01R-001/48) (28 PP; 21 CLAIMS) SRPA# 748,847
LA	-	ENGLISH; (ENG)
DT	-	(P) PATENT
PN	-	US6453240 B1
PD	-	2002-09-17
AP	-	20000411
PR	-	US 60/128,912 19990412 [1999US-P128912]
IC	-	G01R-001/48
IT	-	SONIC LOGGING*; ELASTIC WAVE LOGGING*; WELL LOGGING*
MH	-	SONIC LOGGING*
CC	-	WELL LOGGING & SURVEYING
AB	-	(For abstract and indexing, see Abstract #748,847)
PY	-	2002
XR	-	748847

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4 / 18 TULSA - ©TULS

AN	-	748847
TI	-	PROCESSING FOR SONIC WAVEFORMS
AU	-	BLANCH, J O; HOLMQUIST, S G; MARKET, J A; VARSAMIS, G L
OS	-	HALLIBURTON ENERGY SERVICE
SO	-	WORLD 00/62,101, P 2000.10.19, F 2000.04.12, PR US 1999.04.12 (APPL 60/128,912) (G01V-001/48) (39 PP; 27 CLAIMS)
LA	-	ENGLISH; (ENG)
DT	-	(P) PATENT
PN	-	WO200062101
PD	-	2000-10-19
AP	-	20000412
PR	-	US 60/128,912 19990412 [1999US-P128912]
IC	-	G01V-001/48
IT	-	SONIC LOGGING*; ACOUSTIC RECEIVER*; DOMAIN*; ELASTIC WAVE*; ELASTIC WAVE LOGGING*; ELECTRICAL EQUIPMENT*; ELECTRONIC EQUIPMENT*; INTERPRETATION*; MATHEMATICS*; PHYSICAL PROPERTY*; RECEIVER (ELECTRONIC)*; SOUND WAVE*; TIME DOMAIN*; WAVE*; WAVE PROPERTY*; WAVEFORM*; WELL

LOG INTERPRETATION*; WELL LOGGING*; ACOUSTIC PROPERTY; ACOUSTICS; CALCULATING; CHANGE; CHART; COMPUTER STORAGE; DATA; DATA ANALYSIS; DATA IMPROVEMENT; DATA PROCESSING; DATA STORAGE; DETECTION; DETECTOR; DIAGRAM; EQUATION; FILTER (ELECTRICAL); FILTERING (ELECTRICAL); FOURIER ANALYSIS; FOURIER TRANSFORM; FREQUENCY; FREQUENCY DOMAIN; FUNCTION (MATHEMATICS); HALLIBURTON ENERGY SERVICE; IMPROVEMENT; INSTRUMENT; MATHEMATICAL ANALYSIS; MATHEMATICAL MODEL; MODEL; PROBABILITY; RECIPROCAL FUNCTION; REMOTE SENSING; REMOTE SENSOR; SIGNAL; SONDE; SOUND VELOCITY; SOUND WAVE SOURCE; STATISTICAL ANALYSIS; TRANSMISSION (DATA); TRANSMITTER; TRANSMITTING; VELOCITY; WAVE FREQUENCY; WAVE SOURCE; WAVE VELOCITY; WELL LOG; WELL LOGGING DATA; WELL LOGGING EQUIPMENT; WELLBORE DIAGRAM

MH - SONIC LOGGING*

CC - WELL LOGGING & SURVEYING

AB - A method is described for creating a frequency or time domain semblance for use in conjunction with acoustic logging tools. The frequency domain semblance may be obtained by transforming an acoustic signal received at multiple depths into the frequency domain, combining the received waveforms corresponding to the different depths, and expressing the result in a graph with slowness and frequency axes. Another aspect is the treatment of 2 or more time-domain semblances as probability-density functions of the slowness for an acoustic signal. This enables the combination of time-domain semblances from the same depth in the well bore. Once combined, the time-domain semblances more accurately depict the slowness of an acoustic wave through the formation at the selected depth. In addition, a related self-adaptation method to compress the waveform data down hole for storage or transmission is also described.

PY - 2000

Query/Command : 7

**** SS 2: Results 19.893**

```
Search statement   3
```

Query/Command : ss 7

```
  Frequency   Term
      216   SS
    19893   7


** SS 3: Results 0

  Search statement    4
```

Query/Command : estimat??? 1w source 1w wave????

Frequency	Term
76899	SOURCE
51142	ESTIMAT???
130927	WAVE????

**** SS 4: Results 8**

Search statement 5

Query/Command : prt 1-8 ti

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1 / 8 TULSA - ©TULS

TI - APPLICATION OF ACOUSTIC FULL-WAVE TOMOGRAPHY TO FIELD DATA

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2 / 8 TULSA - ©TULS

TI - PREDICTION OF THE WAVEFIELD ANYWHERE ABOVE AN ORDINARY TOWED STREAMER: APPLICATION TO SOURCE WAVEFORM ESTIMATION, DEMULTIPLE, DEGHOSTING, DATA RECONSTRUCTION AND IMAGING

---

3 / 8 TULSA - ©TULS

TI - DEEP-WATER MULTIPLE SUPPRESSION IN THE NEAR-OFFSET RANGE

---

4 / 8 TULSA - ©TULS

TI - ADAPTIVE MINIMUM PREDICTION-ERROR DECONVOLUTION AND SOURCE WAVELET ESTIMATION USING HOPFIELD NEURAL NETWORKS

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5 / 8 TULSA - ©TULS

TI - SOURCE WAVELET AND ITS ANGULAR SPECTRUM FROM PLANE-WAVE SEISMOGRAMS

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6 / 8 TULSA - ©TULS

TI - MONTE CARLO **ESTIMATION** OF **SOURCE WAVELETS** AND REFLECTIVITY SERIES

7/8 TULSA - ©TULS

TI - SIMULTANEOUS DETERMINATION OF SOURCE WAVELET AND VELOCITY PROFILE USING IMPULSIVE POINT-SOURCE REFLECTIONS FROM A LAYERED FLUID

8/8 TULSA - ©TULS

TI - METHOD AND SYSTEM FOR REMOVING THE EFFECT OF THE SOURCE WAVELET FROM SEISMIC DATA

Query/Command : 1 fu

```
Frequency   Term
   81120  1
      16  FU


** SS 5: Results 0

Search statement   6
```

Query/Command : his

```
File : TULSA

SS  Results
  1        18  ..INDEX /Aun
               BLANCH, J O
  2     19893  7
  3         0  SS 7
  4         8  ESTIMAT??? 1W  SOURCE 1W WAVE????
  5         0  1 FU

Search statement   6
```

Query/Command : prt ss 4 1

1/8 TULSA - ©TULS

AN - 810462

TI - APPLICATION OF ACOUSTIC FULL-WAVE TOMOGRAPHY TO FIELD DATA

AU - TAKASE, S; WATANABE, T; MATSUOKA, T; ASHIDA, Y; YABUUCHI, S

OS - OYO CORP; KYOTO UNIV; JAPAN NUCL CYCLE DEV INST

SO - BUTSURI-TANSA V 55, NO 5, PP 375-385, OCT 2002 (COLOR; 11 REFS; IN JAPANESE)

LA - JAPANESE; (JPN); NON-ENGLISH; (XE)

Query/Command : his

```
File : TULSA
```

SS	Results	
1	18	..INDEX /Aun BLANCH, J O
2	19893	7
3	0	SS 7
4	8	ESTIMAT??? 1W SOURCE 1W WAVE????
5	0	1 FU

Search statement 6

Query/Command : compar???? 2d estimat??? 2d source 2d wave????

Frequency	Term
76899	SOURCE
72228	COMPAR????
51142	ESTIMAT???
130927	WAVE????

** SS 6: Results 0

Search statement 7

Query/Command : compar???? s estimat??? s source s wave????

Frequency	Term
76899	SOURCE
72228	COMPAR????
51142	ESTIMAT???
130927	WAVE????

**** SS 7: Results 4**

Search statement 8

Query/Command : compar??? s estimat??? s source

Frequency	Term
76899	SOURCE
28427	COMPAR???
51142	ESTIMAT???

**** SS 8: Results 20**

Search statement 9

Query/Command : prt 1-20 ti

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1 / 20 TULSA - ©TULS

TI - ACOUSTIC LOGGING APPARATUS AND METHOD FOR ANISOTROPIC EARTH FORMATIONS

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2 / 20 TULSA - ©TULS

TI - ON THE SLOW DRAINING OF A GRAVITY CURRENT MOVING THROUGH A LAYERED PERMEABLE MEDIUM

---

3 / 20 TULSA - ©TULS

TI - ELIMINATION OF FREE-SURFACE RELATED MULTIPLES WITHOUT NEED OF THE SOURCE WAVELET

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4 / 20 TULSA - ©TULS

TI - THE NATIH PETROLEUM SYSTEM OF NORTH OMAN

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5 / 20 TULSA - ©TULS

TI - ELIMINATION OF FREE SURFACE-RELATED MULTIPLES WITHOUT NEED OF THE SOURCE WAVELET

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6 / 20 TULSA - ©TULS

TI - VARIOGRAM ANALYSIS OF HELICOPTER MAGNETIC DATA TO IDENTIFY PALEOCHANNELS OF THE OMARURU RIVER, NAMIBIA

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7 / 20 TULSA - ©TULS

TI - PALAEOMAGNETIC ANALYSIS OF FOLD CLOSURE GROWTH AND VOLUMETRICS

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8 / 20 TULSA - ©TULS

TI - AN EXPERIMENTAL COMPARISON OF THREE DIRECT METHODS OF MARINE SOURCE SIGNATURE ESTIMATION

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9 / 20 TULSA - ©TULS

TI - INVERSION OF THE POWER SPECTRUM FROM GRAVITY ANOMALIES OF PRISMATIC BODIES

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10 / 20 TULSA - ©TULS

TI - GENETIC CLASSIFICATION OF PETROLEUM SYSTEMS USING THREE FACTORS: CHARGE, MIGRATION, AND ENTRAPMENT

11 / 20 TULSA - ©TULS

TI - SOURCE SIGNATURE DETERMINATION FROM MINISTREAMER DATA

12 / 20 TULSA - ©TULS

TI - MULTI-OFFSET ACOUSTIC INVERSION OF A LATERALLY INVARIANT MEDIUM : APPLICATION TO REAL DATA

13 / 20 TULSA - ©TULS

TI - FLUME CONFINEMENT EFFECT ON WAVE-INDUCED DYNAMIC PRESSURES ON TWIN-TANDEM CYLINDERS

14 / 20 TULSA - ©TULS

TI - THE HYDROCARBON SOURCE POTENTIAL OF BRAZIL AND WEST AFRICA SALT BASINS : A MULTIDISCIPLINARY APPROACH

15 / 20 TULSA - ©TULS

TI - GENETIC CLASSIFICATION OF PETROLEUM SYSTEMS

16 / 20 TULSA - ©TULS

TI - A NEW METHOD FOR THE MEASUREMENT OF KINETIC PARAMETERS OF HYDROCARBON GENERATION FROM SOURCE ROCKS

17 / 20 TULSA - ©TULS

TI - MIGRATION OF OIL AND GAS IN THE MAHAKAM DELTA, KALIMANTAN : EVIDENCE AND QUANTITATIVE ESTIMATE FROM ISOTOPE AND BIOMARKER STUDIES

18 / 20 TULSA - ©TULS

TI - SEDIMENTARY "SIGNATURES" OF FORELAND BASIN ASSEMBLAGES : REAL OR COUNTERFEIT?

19 / 20 TULSA - ©TULS

TI - CONCEPTS FOR ESTIMATING HYDROCARBON ACCUMULATION AND DISPERSION

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20 / 20 TULSA - ©TULS

TI - DEVONIAN SHALE

Query/Command : prt 1 8 11 fu

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1 / 20 TULSA - ©TULS

AN - 820806

TI - ACOUSTIC LOGGING APPARATUS AND METHOD FOR ANISOTROPIC EARTH FORMATIONS

AU - BLANCH, J O; VARSAMIS, G

OS - HALLIBURTON ENERGY SERVICE

SO - EUROPE 1,324,076A2, P 2003.07.02, F 2002.12.09, PR US 2001.12.19 (APPL 25,157) AND US 2001.12.21 (APPL 27,749) (G01V-001/48) (20 PP; 57 CLAIMS)

LA - ENGLISH; (ENG)

DT - (P) PATENT

PN - EP1324076 A2

PD - 2003-07-02

AP - 20021209

PR - US25157 20011219 [2001US-0025157]
US27749 20011221 [2001US-0027749]

IC - G01V-001/48

IT - SONIC LOGGING*; ELASTIC WAVE*; ELASTIC WAVE LOGGING*; FORMATION EVALUATION*; INTERPRETATION*; PHYSICAL PROPERTY*; SHEAR WAVE*; SHEAR WAVE VELOCITY*; VELOCITY*; WAVE*; WAVE PROPERTY*; WAVE VELOCITY*; WAVEFORM*; WELL LOG INTERPRETATION*; WELL LOGGING*; ACOUSTIC RECEIVER; ACOUSTICS; ANISOTROPY; APPROXIMATION; AZIMUTH; CHARACTERIZATION; CHART; CLASSIFICATION; COMPOSITE WAVE; COMPOSITION; COMPUTING; DATA PROCESSING; DENSITY; DETECTION; DETECTOR; DIAGRAM; DIPOLE; ELECTRICAL EQUIPMENT; ELECTRONIC EQUIPMENT; EQUATION; GEOLOGIC STRUCTURE; GRAPH; HALLIBURTON ENERGY SERVICE; HETEROGENEOUS RESERVOIR; INSTRUMENT; ISOTROPY; MATHEMATICAL ANALYSIS; MATHEMATICAL MODEL; MATHEMATICS; MODEL; ORIENTATION; POLARIZATION; RECEIVER (ELECTRONIC); REMOTE SENSING; REMOTE SENSOR; RESERVOIR; RESERVOIR CHARACTERIZATION; ROCK COMPOSITION; ROCK DENSITY; SEISMIC WAVE; SEISMIC WAVE SOURCE; SHEAR WAVE SOURCE; SONDE; SOUND WAVE; SOUND WAVE SOURCE; WAVE SOURCE; WELL LOG; WELL LOGGING EQUIPMENT; WELLBORE DIAGRAM

MH - SONIC LOGGING*

CC - WELL LOGGING & SURVEYING

AB - A signal processing technique is described for determining the fast and slow shear wave polarizations and their orientation for acoustic waves in an anisotropic earth formation. The signal processing method decomposes composite received waveforms a number of times, using a number of different strike angles. The decomposed signals are used to create estimated source signals. The **estimated source** signals are **compared** in some way to obtain an objective function. Locations in a plot where the objective function reaches minimum values are indicative of the acoustic velocity of the fast and slow polarizations within the formation.

PY - 2003

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8 / 20 TULSA - ©TULS

AN - 617612

TI - AN EXPERIMENTAL COMPARISON OF THREE DIRECT METHODS OF MARINE SOURCE SIGNATURE ESTIMATION

AU - LAWS, R; LANDRO, M; AMUNDSEN, L

OS - SCHLUMBERGER CAMBRIDGE RES; IKU PETROLEUM RESEARCH; NORWEGIAN STATE OIL CO

SO - 57TH EAGE CONF (GLASGOW, SCOT, 95.05.29-6/2/95) EXTENDED ABSTR PAP NO B027 V 1, 1995 (ISBN 90-73781-06-X; 2 PP; 4 REFS; ABSTRACT ONLY) (AO)

NU - ISBN 907378106X

LA - ENGLISH; (ENG)

DT - (A) MEETING PAPER ABSTRACT

IT - SEISMIC WAVE SOURCE*; ARRAY*; DATA PROCESSING*; EXPLORATION*; GEOPHYSICAL EXPLORATION*; MARINE EXPLORATION*; PATTERN*; PHYSICAL PROPERTY*; SEISMIC DATA PROCESSING*; SEISMIC EXPLORATION*; SEISMIC REFLECTION METHOD*; WAVE PROPERTY*; WAVE SOURCE*; WAVEFORM*; BUBBLE; GEOPHYSICAL EQUIPMENT; MULTIPLE REFLECTION; PULSE; REFLECTION (SEISMIC); SECONDARY REFLECTION; SEISMIC EQUIPMENT; SEISMIC PULSE; SEISMIC STREAMER; SEISMIC WAVE PROPAGATION; WAVE PHENOMENON; WAVE PROPAGATION

MH - SEISMIC WAVE SOURCE*

CC - GEOPHYSICS

AB - Three published methods for **estimating** the **source** signature of a marine seismic array are **compared** experimentally. In all 3 methods the fundamental assumption is that the bubbles in the array radiate as monopoles. The 3 methods use different approaches to estimate the source-functions of the monopoles, but all use the same method of computing the far field signature from the monopole source functions. The Ministreamer Bubble Inversion method is proprietary to Statoil. The method solves for monopole source functions that are solutions of the equation of motion of the pulsating bubbles in the array. The input data comes from a ministreamer under the source. The Ministreamer Monopole Inversion method is proprietary to Statoil. The method solves for arbitrary monopole source functions at the positions of the bubbles in the array. The input data comes from a

ministreamer under the source. The Near-field Monopole Inversion or Notional Source method is proprietary to Schlumberger. The method solves for arbitrary monopole source functions at the positions of the bubbles in the array. The input data comes from near-field hydrophones close to the airguns. (Longer abstract available) (Original article not available from T.U.)

PY - 1995

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11 / 20 TULSA - ©TULS

AN - 581716

TI - SOURCE SIGNATURE DETERMINATION FROM MINISTREAMER DATA

AU - LANDRO, M; LANGHAMMER, J; SOLLIE, R; AMUNDSEN, L; BERG, E

OS - IKU PETROLEUM RESEARCH; STATOIL RESEARCH CENTRE

SO - GEOPHYSICS V 59, NO 8, PP 1261-1269, AUG 1994 (17 REFS)

NU - ISSN 00168033

LA - ENGLISH; (ENG)

IT - WAVEFORM*; DATA PROCESSING*; EXPLORATION*; GEOPHYSICAL EQUIPMENT*; GEOPHYSICAL EXPLORATION*; MARINE EXPLORATION*; MATHEMATICAL ANALYSIS*; MATHEMATICS*; NUMERICAL INVERSION*; PHYSICAL PROPERTY*; SEISMIC DATA PROCESSING*; SEISMIC EQUIPMENT*; SEISMIC EXPLORATION*; SEISMIC REFLECTION METHOD*; SEISMIC STREAMER*; WAVE PROPERTY*; AIR GUN; ALGORITHM; AMPLITUDE VERSUS OFFSET; ARRAY; ATLANTIC OCEAN; BUBBLE; CHART; DATA; DATA ACQUISITION; DELTA FUNCTION; DIRECTIONAL RECEIVING; DIRECTIONAL WAVE SOURCE; ELECTRICAL EQUIPMENT; ELECTRONIC EQUIPMENT; EURASIA; EUROPE; FOURIER ANALYSIS; FUNCTION (MATHEMATICS); GEOPHYSICAL DATA; GRAPH; HYDROPHONE; INTERVAL VELOCITY; LEAST SQUARES; LINEAR; MATRIX ALGEBRA; MULTIPLE REFLECTION; NONLINEAR; NORTH ATLANTIC OCEAN; NORTH SEA; NORWAY; NUMERICAL ANALYSIS; OIL AND GAS FIELDS; OIL FIELD; OSEBERG OIL FIELD; PATTERN; PHASE BEHAVIOR; PHASE CHANGE; PHASE SHIFT; PULSE; RECORD; RECORDING; REFLECTION (SEISMIC); REFLECTION COEFFICIENT; REFLECTION RECORD; SEAS AND OCEANS; SECONDARY REFLECTION; SEISMIC DATA; SEISMIC PULSE; SEISMIC RECORD; SEISMIC RECORDING; SEISMIC VELOCITY; SEISMIC WAVE PROPAGATION; SEISMIC WAVE SOURCE; SOUND WAVE SOURCE; STATISTICAL ANALYSIS; TABLE (DATA); UNDERWATER SOUND SOURCE; VECTOR ANALYSIS; VELOCITY; WAVE PHENOMENON; WAVE PROPAGATION; WAVE SOURCE; WAVE VELOCITY

MH - WAVEFORM*

CC - GEOPHYSICS

AB - TWO METHODS FOR ESTIMATING THE PRESSURE WAVEFIELD GENERATED BY A MARINE AIR-GUN ARRAY ARE TESTED. DATA HAVE BEEN ACQUIRED AT A MINISTREAMER LOCATED BELOW THE SOURCE ARRAY. EFFECTIVE SOURCE SIGNATURES FOR EACH AIR

GUN ARE ESTIMATED. IN THE FIRST METHOD, A NONLINEAR INVERSION ALGORITHM IS USED, WHERE THE FORWARD MODELING SCHEME IS BASED UPON A PHYSICAL MODELING OF THE AIR BUBBLE GENERATED BY EACH AIR GUN. IN THE SECOND METHOD, A LINEAR INVERSION METHOD IS USED, WITH THE ASSUMPTION THAT THE PHYSICS IN THE PROBLEM CAN BE DESCRIBED BY THE ACOUSTIC WAVE EQUATION WITH EXPLOSIVE POINT SOURCES AS THE DRIVING TERM. FROM THE **ESTIMATED** EFFECTIVE **SOURCE** SIGNATURES, FAR-FIELD SIGNATURES HAVE BEEN CALCULATED FOR BOTH METHODS AND **COMPARED** WITH MEASURED FAR-FIELD SIGNATURES. THE ERROR ENERGY BETWEEN THE MEASURED AND ESTIMATED FAR-FIELD SIGNATURES WAS APPROX. 8% FOR BOTH METHODS.

PY - 1994

Query/Command : his

```
File : TULSA

SS  Results
  1        18   ..INDEX /Aun
                BLANCH, J O
  2     19893   7
  3         0   SS 7
  4         8   ESTIMAT??? 1W  SOURCE 1W WAVE????
  5         0   1 FU
  6         0   COMPAR???? 2D ESTIMAT??? 2D SOURCE 2D WAVE????
  7         4   COMPAR???? S ESTIMAT??? S SOURCE S WAVE????
  8        20   COMPAR??? S ESTIMAT??? S SOURCE

Search statement   9
```

Query/Command : estimat??? 3w source

```
Frequency   Term
   76899  SOURCE
   51142  ESTIMAT???
```

**** SS 9: Results 170**

```
Search statement  10
```

Query/Command : compar???

**** SS 10: Results 27.550**

```
Search statement  11
```

Query/Command : his

```
File : TULSA
```

SS	Results	
1	18	..INDEX /Aun BLANCH, J O
2	19893	7
3	0	SS 7
4	8	ESTIMAT??? 1W SOURCE 1W WAVE????
5	0	1 FU
6	0	COMPAR???? 2D ESTIMAT??? 2D SOURCE 2D WAVE????
7	4	COMPAR???? S ESTIMAT??? S SOURCE S WAVE????
8	20	COMPAR??? S ESTIMAT??? S SOURCE
9	170	ESTIMAT??? 3W SOURCE
10	27550	COMPAR???

Search statement 11

Query/Command : 9 and 10

**** SS 11: Results 19**

Search statement 12

Query/Command : his

File : TULSA

SS	Results	
1	18	..INDEX /Aun BLANCH, J O
2	19893	7
3	0	SS 7
4	8	ESTIMAT??? 1W SOURCE 1W WAVE????
5	0	1 FU
6	0	COMPAR???? 2D ESTIMAT??? 2D SOURCE 2D WAVE????
7	4	COMPAR???? S ESTIMAT??? S SOURCE S WAVE????
8	20	COMPAR??? S ESTIMAT??? S SOURCE
9	170	ESTIMAT??? 3W SOURCE
10	27550	COMPAR???
11	19	9 AND 10

Search statement 12

Query/Command : 4 or 8

**** SS 12: Results 28**

Search statement 13

Query/Command : 11 not 12

**** SS 13: Results 14**

Search statement 14

Query/Command : prt 1-14 ti

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1 / 14 TULSA - ©TULS

TI - A COMPARISON OF SOME INTERPRETATION TECHNIQUES FOR MAGNETIC DATA

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2 / 14 TULSA - ©TULS

TI - AN OPTIMIZATION OF THE INVERSE SCATTERING MULTIPLE ATTENUATION METHOD FOR OBS (OCEAN-BOTTOM SEISMIC) AND VC (VERTICAL CABLE) DATA

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3 / 14 TULSA - ©TULS

TI - AN OPTIMIZATION OF THE INVERSE SCATTERING MULTIPLE ATTENUATION METHOD FOR OBS (OCEAN BOTTOM SEISMIC) AND VC DATA

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4 / 14 TULSA - ©TULS

TI - SOURCE SIGNATURE DETERMINATION BY INVERSION OF MINISTREAMER DATA

---

5 / 14 TULSA - ©TULS

TI - SEISMIC VELOCITY ANALYSIS FOR MATURITY ASSESSMENT: UPPER ASSAM BASIN, INDIA

---

6 / 14 TULSA - ©TULS

TI - ESTIMATION OF THE SUBSURFACE REFLECTION COEFFICIENT USING THE PRESTACK REVERSE-TIME DEPTH MIGRATION

---

7 / 14 TULSA - ©TULS

TI - **ESTIMATION** OF **SOURCE** ROCK MATURITY BY RESISTIVITY

---

8 / 14 TULSA - ©TULS

TI - ON TWO APPROACHES TO WAVE EQUATION BASED MULTIPLE ATTENUATION

---

9 / 14 TULSA - ©TULS

TI - SOLID STATE 13C NMR FOR CHARACTERISING SOURCE ROCKS

10 / 14 TULSA - ©TULS

TI - **ESTIMATION** OF **SOURCE** ARRAY SIGNATURES

11 / 14 TULSA - ©TULS

TI - AIRGUN SIGNATURE ESTIMATION AND WAVELET PROCESSING OF MARINE SEISMIC DATA

12 / 14 TULSA - ©TULS

TI - HEAVY MINERALS AND PROVENANCE OF SANDS : MODELING OF LITHOLOGICAL END MEMBERS FROM RIVER SANDS OF NORTHERN AUSTRIA AND FROM SANDSTONES OF THE AUSTROALPINE GOSAU FORMATION (LATE CRETACEOUS)

13 / 14 TULSA - ©TULS

TI - REGIONAL SOURCE ROCK MAPPING USING SOURCE POTENTIAL RATING INDEX

14 / 14 TULSA - ©TULS

TI - A STUDY OF THE TIME VARIANT CHARACTER OF SOURCE SIGNATURES IN BOREHOLES

Query/Command : prt 5 11 fu

5 / 14 TULSA - ©TULS

AN - 712847

TI - SEISMIC VELOCITY ANALYSIS FOR MATURITY ASSESSMENT: UPPER ASSAM BASIN, INDIA

AU - MALLICK, R K; RAJU, S V; GOGOI, K D

OS - OIL INDIA LTD; DIBRUGARH UNIV

SO - J GEOPHYS (INDIA) V 19, NO 2, PP 91-100, APRIL 1998 (15 REFS)

NU - ISSN 02571412

LA - ENGLISH; (ENG)

IT - INDIA*; ASIA*; ASSAM BASIN*; CALCULATING*; DIAGENESIS*; EURASIA*; EXPLORATION*; GEOPHYSICAL EXPLORATION*; MATHEMATICS*; MATURATION*; OIL AND GAS ORIGIN*; POST DEPOSITIONAL PROCESS*; SEISMIC EXPLORATION*; SEISMIC REFLECTION METHOD*; SEISMIC VELOCITY COMPUTATN*; SOURCE ROCK*; ALTERATION; BARAIL SANDSTONE; BARAIL SERIES; BASEMENT ROCK; BASIN; BASIN DEVELOPMENT; BASIN STUDY; BURIAL HISTORY; CENOZOIC; CHART; CHEMISTRY; COMPACTION (GEOLOGY); CONTINENT; CONTINENTAL MARGIN; CONTINENTAL

SHELF FACIES; CORRELATION; CROSS SECTION; DATA; DELTAIC DEPOSIT; DEPOSIT (GEOLOGY); DEPOSITIONAL ENVIRONMENT; DEPTH; DIRECT HYDROCARBON INDICTR; EARTH AGE; EARTH STRUCTURE; ELASTIC WAVE LOGGING; ENVIRONMENT; EOCENE; EQUATION; FACIES; FORELAND BASIN; GEOCHEMICAL INTERPRETATION; GEOCHEMICAL MAP; GEOCHEMISTRY; GEOLOGIC CROSS SECTION; GEOLOGIC EXPLORATION; GEOLOGIC MAPPING; GEOLOGIC STRUCTURE; GEOLOGY; GRAPH; HYDROCARBON POTENTIAL; INDEX MAP; INTERMONTANE BASIN; INTERPRETATION; KOPILI FM; LAKADONG LIMESTONE; LAKE; LANGPAR FM; MAP; MAPPING; MARINE DEPOSIT; MARINE ENVIRONMENT; MIOCENE; NATURAL EARTH PHENOMENON; NEOGENE; OIL AND GAS ENTRAPMENT; OIL AND GAS FIELDS; OIL AND GAS MAP; OIL PRODUCING; OIL RESERVOIR; OLIGOCENE; ORGANIC DIAGENESIS; ORGANIC GEOCHEMISTRY; PALEOCENE; PALEOGENE; PETROLIFEROUS BASIN; PETROLOGY; PHANEROZOIC; PHYSICAL PROPERTY; PLATE TECTONICS; PRESSURE; PRODUCING; REFLECTION; RESEARCH; RESERVOIR; ROCK; SEISMIC CORRELATION; SEISMIC MAPPING; SEISMIC STRATIGRAPHY; SEISMIC VELOCITY; SONIC LOGGING; STRATIGRAPHY; STRUCTURAL GEOLOGY; STUDY; SUBSURFACE PRESSURE; SUBSURFACE TEMPERATURE; SYLHET LIMESTONE; TECTONICS; TEMPERATURE; TERRIGENOUS DEPOSIT; TERTIARY PERIOD; THERMAL ALTERATION; THERMAL PROPERTY; TIPAN SERIES; TRAP (GEOLOGY); UNCONFORMITY; UPLIFT; UPWARP; VELOCITY; VITRINITE REFLECTANCE; WAVE PHENOMENON; WAVE PROPAGATION; WAVE VELOCITY; WELL DATA; WELL LOGGING

MH - INDIA*

CC - GEOPHYSICS

AB - The Upper Assam foreland basin is an important onshore petroliferous region of India with reservoir rocks ranging in age from upper Paleocene to Miocene. Significant source rock intervals are found in the upper Paleocene-lower Eocene Sylhet Formation and upper Eocene-Oligocene Barail Formation. In a previous study, the thermal maturity of source rocks obtained from measurement of vitrinite reflectance were **compared** with sonic log derived maturity. The relationship can be expressed mathematically, in simple terms. In the present study, the method has been extended to thermal maturity evaluation from seismic velocity analysis. A good correlation has been obtained between maturity from seismic data and measured/calculated vitrinite reflectance values. This has enabled construction of thermal maturity map for the entire study area. The use of seismic velocity analysis is simple, reliable, and does not entail any additional expenditure. It also has the advantage of providing preliminary **estimates** of **source** rock maturity in undrilled areas of the basin.

PY - 1998

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11 / 14 TULSA - ©TULS

AN - 440223

TI - AIRGUN SIGNATURE ESTIMATION AND WAVELET PROCESSING OF

MARINE SEISMIC DATA

AU - LI, Y; SENGBUSH, R L

OS - CHINA NAT OFFSHOR OIL CORP; COLORADO SCH MINES

SO - 20TH ANNU SPE ET AL OFFSHORE TECHNOL CONF (OTC 88) (HOUSTON, 88.05.02-05) PROC V 1, PP 235-242, 1988 (OTC-5643; 11 REFS)

LA - ENGLISH; (ENG)

DT - (AT) MEETING PAPER TEXT

IT - SEISMIC DATA PROCESSING*; AIR GUN*; ARRAY*; DATA PROCESSING*; EXPLORATION*; GEOPHYSICAL EXPLORATION*; MARINE EXPLORATION*; PATTERN*; PHYSICAL PROPERTY*; SEISMIC EXPLORATION*; SEISMIC REFLECTION METHOD*; SEISMIC WAVE SOURCE*; WAVE PROPERTY*; WAVE SOURCE*; WAVEFORM*; ALGORITHM; AMPLITUDE; BAND PASS FILTER; CHART; CONTINENT; CONTINENTAL MARGIN; CONTINENTAL SHELF; CORRELATION; DATA; DECONVOLUTION; EARTH STRUCTURE; ELASTIC WAVE; ELECTRICAL EQUIPMENT; ELECTRONIC EQUIPMENT; EQUATION; FILTER (ELECTRICAL); GEOLOGY; GEOPHYSICAL DATA; GRAPH; MATHEMATICAL ANALYSIS; MATHEMATICAL GEOLOGY; MATHEMATICS; NOISE; RAY PATH; REFLECTION COEFFICIENT; SEISMIC DATA; SEISMIC WAVE; SEISMIC WAVE PATH; SIGNAL TO NOISE RATIO; TABLE (DATA); WAVE; WAVE AMPLITUDE; WAVE FRONT; WAVE PATTERN; WAVE PHENOMENON

MH - SEISMIC DATA PROCESSING*

CC - GEOPHYSICS

AB - THIS NEW TECHNIQUE ESTIMATES THE AIRGUN ARRAY SIGNATURE DIRECTLY FROM MARINE SEISMIC DATA AND USES THAT ESTIMATE TO PHASE COMPENSATE THE DECONVOLUTED DATA, FOLLOWED BY A BANDLIMITING FILTER MATCHED TO THE **ESTIMATED SOURCE** SIGNATURE. THE ARRAY SIGNATURE IS SIMULATED BY A GAUSSIAN- DAMPED SINE FUNCTION, AND THE SIGNATURE ESTIMATE IS BASED ON THE SUPERPOSITION OF ARRIVALS OF THIS FUNCTION ALONG ALL POSSIBLE PRIMARY AND MULTIPLE RAYPATHS, TAKING INTO ACCOUNT SPHERICAL DIVERGENCE AND ZOEPPRITZ REFLECTIVITY IN EACH PATH. PARAMETERS IN THE SIMULATED SIGNATURE, FREQUENCY, PHASE AND DAMPING, ARE ITERATED UNTIL AN OPTIMAL MATCH IS OBTAINED BETWEEN THE SIMULATED FIRST ARRIVALS AND THE ACTUAL FIRST ARRIVALS IN THE SEISMIC DATA. THE VALIDITY OF THE GAUSSIAN-DAMPED SINE WAVE AS THE FORM OF THE SIGNATURE IS VERIFIED BY **COMPARING** THE ESTIMATE WITH THE ACTUAL SIGNATURE RECORDED IN DEEP WATER, WITH THE CORRELATION COEFFICIENT BETWEEN THEM BEING 0.97.

PY - 1988

Query/Command : his

File : TULSA

SS Results

Current session 07/11/2003

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(C) QUESTEL 1994
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Last connection: 17/10/03 15*02*53

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- NEW:Starting 09/03,MEM Chrg for Sci-Tech Files,see INFO MEM
- LGST file reloaded for revised EPO coverage, see INFO LGST
- French Patent Applications Fulltext file, see INFO FRFULL
..FILE / ..INFO / ..GUIDE
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Query/Command : file tulsa

```
QUESTEL       - Time in minutes :   1,10
The cost estimation below is based on Questel's
standard price list
                              Estimated cost :     1.02 USD
Cost estimated for the last database search :     1.02 USD
Estimated total session cost                :     1.02 USD

Selected file: TULSA

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Search statement   1
```

Query/Command : nbr inn/ Blanch joakim

Displaying /BI

1	1	INMISCIBLES
2	1	INMMISCIBLE
3	2	INMOD
4	1	INMOS
5	14	INN
6	1	INNA
7	1	INNACCURATE
8	1	INNAECOELIDA
9	1	INNAGE
10	3	INNAI
11	1	INNAMINACKA
12	1	INNAMINCK
13	10	INNAMINCKA
14	13	INNATE
15	1	INNATELY

Some: numbers / Continue: Y / None: N

Query/Command : nbr /inn blanch joakim

Displaying /Aun

1	2	BLANC, R
2	1	BLANC, S
3	1	BLANCAL, C
4	1	BLANCARD, J
5	1	BLANCETT, J H
6	2	BLANCH, H W
7	3	BLANCH, J
8	3	BLANCH, J E
9	18	BLANCH, J O
10	1	BLANCH, M
11	1	BLANCHARD-WILLIAMSON, M C
12	4	BLANCHARD, A
13	1	BLANCHARD, A D H
14	8	BLANCHARD, A J
15	1	BLANCHARD, A L

Some: numbers / Continue: Y / None: N

Query/Command : 9

** SS 1: Results 18

Continue: Y / N

Query/Command : prt 1-18 ti

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1 / 18 TULSA - ©TULS

TI - ACOUSTIC LOGGING APPARATUS AND METHOD FOR ANISOTROPIC EARTH FORMATIONS

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2 / 18 TULSA - ©TULS

TI - A METHOD TO EXTRACT FAST AND SLOW SHEAR WAVE VELOCITIES IN AN ANISOTROPIC FORMATION

---

3 / 18 TULSA - ©TULS

TI - (R) PROCESSING FOR SONIC WAVEFORMS

---

4 / 18 TULSA - ©TULS

TI - PROCESSING FOR SONIC WAVEFORMS

5 / 18 TULSA - ©TULS

TI - A SIMPLIFIED LAX-WENDROFF CORRECTION FOR STAGGERED- GRID FDTD (FINITE-DIFFERENCE TIME-DOMAIN) MODELING OF ELECTROMAGNETIC WAVE PROPAGATION IN FREQUENCY-DEPENDENT MEDIA

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6 / 18 TULSA - ©TULS

TI - INVERSION AND AVO IN ATTENUATING MEDIA

---

7 / 18 TULSA - ©TULS

TI - IMPROVING MODELING OF WAVE PROPAGATION IN VISCOELASTIC MEDIA

---

8 / 18 TULSA - ©TULS

TI - AN ACCURATE AND EFFICIENT FINITE-DIFFERENCE SOLUTION OF MAXWELL'S EQUATIONS FOR GROUND- PENETRATING RADAR MODELING

---

9 / 18 TULSA - ©TULS

TI - A MODIFIED LAX-WENDROFF CORRECTION FOR WAVE PROPAGATION IN MEDIA DESCRIBED BY ZENER ELEMENTS

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10 / 18 TULSA - ©TULS

TI - MODELING, INVERSION AND IMAGING OF SEISMIC DATA IN VISCOUS MEDIA

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11 / 18 TULSA - ©TULS

TI - EFFICIENT ITERATIVE VISCOACOUSTIC LINEARIZED INVERSION

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12 / 18 TULSA - ©TULS

TI - MODELING OF A CONSTANT Q: METHODOLOGY AND ALGORITHM FOR AN EFFICIENT AND OPTIMALLY INEXPENSIVE VISCOELASTIC TECHNIQUE

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13 / 18 TULSA - ©TULS

TI - CONSTANT Q MODELING: PRELIMINARY RESULTS FOR A NEW ALGORITHM

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14 / 18 TULSA - ©TULS

TI - LINEAR INVERSION IN LAYERED VISCOACOUSTIC MEDIA USING A TIME-DOMAIN METHOD

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15 / 18 TULSA - ©TULS

TI - VISCOELASTIC FINITE-DIFFERENCE MODELING

---

16 / 18 TULSA - ©TULS

TI - 2-D AND 3-D VISCOELASTIC FINITE DIFFERENCE MODELING

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17 / 18 TULSA - ©TULS

TI - 3-D VISCOELASTIC FINITE-DIFFERENCE MODELING

---

18 / 18 TULSA - ©TULS

TI - VISCOELASTIC FINITE-DIFFERENCE MODELING

Query/Command : prt 1 3 4 fu

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1 / 18 TULSA - ©TULS

AN - 820806

TI - ACOUSTIC LOGGING APPARATUS AND METHOD FOR ANISOTROPIC EARTH FORMATIONS

AU - BLANCH, J O; VARSAMIS, G

OS - HALLIBURTON ENERGY SERVICE

SO - EUROPE 1,324,076A2, P 2003.07.02, F 2002.12.09, PR US 2001.12.19 (APPL 25,157) AND US 2001.12.21 (APPL 27,749) (G01V-001/48) (20 PP; 57 CLAIMS)

LA - ENGLISH; (ENG)

DT - (P) PATENT

PN - EP1324076 A2

PD - 2003-07-02

AP - 20021209

PR - US25157 20011219 [2001US-0025157]
US27749 20011221 [2001US-0027749]

IC - G01V-001/48

IT - SONIC LOGGING*; ELASTIC WAVE*; ELASTIC WAVE LOGGING*; FORMATION EVALUATION*; INTERPRETATION*; PHYSICAL PROPERTY*; SHEAR WAVE*; SHEAR WAVE VELOCITY*; VELOCITY*; WAVE*; WAVE PROPERTY*; WAVE VELOCITY*; WAVEFORM*; WELL